Professional Development Urban Schools: What Do Teachers Say?

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This quantitative causal-comparative study compared perceptions of professional development opportunities between high-achieving and low-achieving elementary-middle school teachers in an urban school district using the Standards Assessment Inventory (SAI). A total of 271 teachers participated including 134 (n=134) teachers from high-achieving schools, and 137 (n=137) teachers from low-achieving schools. Teachers in high-achieving schools reported receiving professional development more aligned to the 12 National Standards Development Council (NSDC) standards for quality professional development than teachers in low-achieving schools. In addition, teachers in high-achieving schools indicated receiving professional development modeled as Professional Learning Communities (PLCs). Findings suggest that high quality professional development designed with elements of professional learning communities contribute to higher student achievement.

"Teachers are expected to reach unattainable goals with inadequate tools. The miracle is that at times they accomplish this impossible task." – Dr. Hiam Ginott (Searchquotes, 2010)

Many schools and school systems face an insurmountable task: meeting expectations of the No Child Left Behind Act (NCLB) (2001) mandating every student demonstrate competence in reading and mathematics by 2014 (Doubek & Cooper 2007). In recent decades of educational reform, teacher professional development served as a bridge between the current standards movement and student performance (Hirsch & Killion, 2009). Educational policy makers and experts recognize teacher effectiveness as key for improving student achievement, supporting increase in resources toward effective professional development (Jacquith, Mindich, Wei, & Darling-Hammond, 2010). Despite increased focus nationwide, a disparity exists among schools in the type and quality of teacher professional development presentations offered. Wei, Darling-Hammond, and Adamson (2010) found that teacher learning in the United States primarily emphasized development opportunities unlikely to influence teacher practice or student

achievement. To address this apparent disconnect, the National Standards Development Council (NSDC) developed 12 standards by which to create high-quality, effective professional development in schools (Hirsh, 2005). This quantitative, causal-comparative study sought to determine perceptions of teachers in both high- and low- achieving urban elementary-middle (E-M) schools regarding alignment of professional development with the 12 NSDC standards.

Professional Development and School Success

Professional development characterizes an essential dynamic in improving teaching and learning (Tirozzi & Uro, 1997). According to the National Commission on Teaching and America's Future (1996), a direct correlation exists between education of students and knowledge and influence of teachers. In addition, school leaders and professional developers benefit as decisions to advance teachers toward triple loop learning (high quality professional development that alters beliefs and practices) are embedded into future professional development opportunities (McNamara, 2007; Peschl, 2007). Organizations engaging staff in triple loop learning undergo profound change transforming the organization into an innovative, creative entity where individuals own and understand their own learning (Peschl, 2007).

National studies identify effective professional learning as a critical component of school success (Wei et al., 2009). However, despite these studies, a national failure to ensure educators are provided effective professional learning exists and the structure for teacher professional development remains broken (Hill, 2009). School based professional development often comes from outside agencies, offered once, and not associated with the school's culture or stakeholders (Levine, Smith, & Carr, 2009). Surveying teachers to gain perceptions regarding professional development provides school leaders with insight and knowledge needed to design effective professional learning opportunities for staff (NSDC, 2009). As teachers receive the primary benefits of professional development, district and school leaders need to evaluate their feedback regarding professional learning opportunities (Argyris & Schön, 1996).

No Child Left Behind and Professional Development

According to the United States Department of Education Office of the Under Secretary (2006), NCLB places professional development as the cornerstone for improving teacher performance, holding states and school districts accountable for developing high quality

educators (Hirsch, 2005). Unfortunately, even with the mandate of NCLB for schools to provide teachers with high-quality professional development, opportunities remain ineffective and of low quality with minimal impact on teacher performance (Jacquith et al., 2010). A study conducted by the National Center for Education Statistics in 2005 found 95% of teachers in public schools reported professional development consisted primarily of workshops and conferences, both characteristics of low-quality professional development (NCES, 2005).

Although NCLB mandates quality professional development, the law does not provide set guidelines or standards for accomplishing the task. Ambiguity regarding standards of high-quality professional development result in mixed messages provided to school leaders and teachers (U.S. Department of Education & Office of the Under Secretary, 2006). Additionally, many believe that pressure of NCLB contribute to an increase in ineffective professional development and decrease in high-quality professional development. A study conducted by Powell, Higgins, Aran, and Reed (2009) found 72% of surveyed principals reported providing low-quality professional development for teachers geared at meeting adequate yearly progress (AYP) and raising test scores. The study further revealed that only 23% of professional development offered was based on teacher interests; and, due to NCLB accountability measures for schools, professional development for reading, mathematics, and science increased, whereas social studies professional development decreased (Powell et al., 2009).

Additionally, the National Standards Development Council (NSDC) acknowledged a great deal of confusion exists concerning the term "research-based" as encompassing not just programming, but processes for acquiring the program or strategy. The issue with the term is its application to practices differing significantly in rigor, efficacy, and success (NSDC, 2009). For example, a professional learning team may research an article and decide to implement the outlined strategy; the strategy may not be based in research, but because the team "researched" the article, the perception that the strategy is research-based exists. Another issue raised proposed that NCLB places pressure on districts and school leaders to find programs and strategies that improve student learning quickly, failing to take the time to thoroughly conduct research on programs prior to adoption (NSDC, 2009).

NCLB identified five characteristics for high-quality professional development: research-based, sustainable, intensive, content focused and aligned with content standards. According to the National Center for Education Statistics (NCES), research scientists

acknowledged various characteristics of professional development linked to positive change in teacher performance and instructional application, including:

1. Focus on content and methods: A focus on subject matter content or the teaching methods they employ.
2. Duration: Duration in terms of the number of hours of training provided.
3. Format: An activity format integrated into the daily work of teachers, rather than removed from the context of direct public school teaching, as in traditional workshops.
4. Collective participation: Collective participation of teachers' peers in matters of instruction.
5. Alignment: Alignment with local standards and other initiatives to change instructional practice as well as teachers' own professional goals.
6. Opportunities for Active Learning: Activities that produce many opportunities for active learning, including observation, planning, practicing, and presenting (2005, p. 1).

A study conducted by the U.S. Department of Education (2006) identified additional characteristics for high-quality professional development included opportunities for teachers to engage in leadership activities, participate in teacher collaboration within the same school, and are in-depth in nature. Due to lack of clarity in what constitutes high-quality professional development, and lack of consistency in developing effective professional learning experiences for teachers, Mizell (2001) and Darling-Hammond et. al. (2009) recommended development of standards for professional development to influence quality of teaching and learning.

The National Standards Development Council

NSDC serves to provide school leaders and professional developers with quality standards to create effective professional learning opportunities for teachers (NSDC, 2010). Renamed as Learning Forward, NSDC represents the largest non-profit association dedicated to staff development and school improvement (NSDC, 2009). The NSDC maintained that obtaining continued improvement of both student and teacher performance in school depends upon the level of quality of professional development programs (Schmitt, 2004). The purpose and stance of NSDC align with the premise of NCLB, as it relates to stressing the necessity of quality professional development to improve teaching and learning.

Through extensive research, NSDC adopted 12 standards for creating high-quality professional development, and representing the most comprehensive set of standards currently presented (Ross et. al., 2006; Schramm, 2006). The NSDC standards, as outlined by Schramm (2006) include:

> Standard 1: Learning Communities: Staff development that improves the learning of students organizes adults into learning communities whose goals align with those of the school and district.
>
> Standard 2: Leadership: Staff development that improves the learning of students requires skillful school and district leaders who guide continuous instructional improvement.
>
> Standard 3: Resources: Staff development that improves the learning of students requires resources to support adult learning and collaboration.
>
> Standard 4: Data-driven: Staff development that improves the learning of students uses disaggregated student data to determine adult learning priorities, monitor progress, and helps sustain continuous improvement.
>
> Standard 5: Evaluation: Staff development that improves the learning of students uses multiple sources of information to guide improvement and demonstrate its impact.
>
> Standard 6: Research-based: Staff development that improves the learning of students prepares educators to apply research to decision making.
>
> Standard 7: Designs and Strategies: Staff development that improves the learning of students uses learning strategies appropriate to the intended goal.
>
> Standard 8: Learning: Staff development that improves the learning of students applies knowledge about human learning and change.
>
> Standard 9: Collaboration skills: Staff development that improves the learning of students provides educators with the knowledge and skills to collaborate.
>
> Standard 10: Equity: Staff development that improves the learning of students prepares educators to understand and appreciate students, creates safe, orderly and supportive learning environments, and upholds high expectations for their academic achievement.
>
> Standard 11: Quality Teaching: Staff development that improves the learning of students deepens educators' content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately.

> Standard 12: Family Involvement: Staff development that improves the learning of students provides educators with knowledge and skills to involve families and other stakeholders appropriately (p. 2).

The 12 NSDC Standards further sub-divide into three categories: content, process, and context standards. Content standards address what is learned in the professional development. Context standards address conditions under which the professional development takes place, and process standards address how the professional development was designed.

Sparks (2004) distinguished professional development into two tiers: tier one and tier two. Schools implementing tier-one professional development create staff that study educational trends and strategies, work in teams, and set goals for organizational improvement (Sparks, 2004). Tier-one professional development, considered as quality professional development, remains most aligned with the 12 NSDC standards (Hirsh, 2005). The assumption made is that schools implementing tier-one type professional development opportunities are likely identified as high-achieving schools. Conversely, tier-two professional developments are built on demands, instructional scripts, and extensive monitoring for compliance (Sparks, 2004). Tier-two professional development, considered low-quality professional development, does not align with the 12 NSDC standards. Most schools failing to meet performance standards generally include teachers who receive tier two professional development opportunities (Sparks, 2004).

Over the past 40 states local school districts fully or partially adopted the 12 standards to design high-quality professional development opportunities within their schools (Jacquith et al., 2010). The recognition and acceptance of these standards resulted from considerable research by NSDC (Schramm, 2006). Each NSDC standard contains a rational explanation of the underlying principle and an annotated bibliography citing research supporting inclusion of the standard (NSDC, 2009). Although developed and widely accepted, these standards do not contain a mandate for implementation, and autonomy exists for schools regarding use (NSDC, 2009). While all 12 standards are considered important, standard 1, professional learning communities (PLCs), represents a main topic in reform efforts for improving schools and teacher quality (Jacquith et al., 2010).

Professional Learning Communities

Professional Learning Communities (PLCs), a strategy for promoting intense teamwork, includes groups that learn and practice collectively to make improvements in instruction and achievement. Prior research on PLCs allows for recognition of characteristics that may be attributed with thriving schools (Wei et al., 2010). Wenger, McDermott, and Snyder, (2002) described PLCs as organizations that:

1. Possess a shared concern or domain of interest that provides the community with a unique identity.
2. Engage in joint activities and discussions.
3. Develop a shared practice that includes developing strategies for solving problems. (p. 76).

PLCs show evidence of diversity and vary in size to serve different purposes. In schools, the learning team could consist of the entire faculty meeting as a whole to learn new strategies or skills, or members serving on a school improvement team to serve as a learning community within the school. Taking collective responsibility for student learning, represented by team members, serves as the primary purpose of a learning community as well as assisting with examination of standards students must master. Other methods for shared responsibilities include co-planning of lessons, evaluating student work, and solving shared instructional issues (NSDC, 2009).

A truly exemplary PLC team requires constant collaboration to create valuable lessons and unit plans together (Schmoker, 2009). PLCs also consist of administrators meeting together and learning more about strategies to better support teachers, analyze and evaluate school reform strategies for teachers, and acquire new research-based strategies for improving teaching and learning (Hord, 2009). In fact, learning communities strengthen when school, district, and school board leadership participate (NSDC, 2009).

A study conducted by NSDC in the four most promising professionally active states of Missouri, Colorado, New Jersey, and Vermont, determined a key indicator for student and campus success resulted from promoting PLCs within schools (Jacquith et al., 2010). PLCs require teachers to reflect on professional development initiatives and strategies, and determine best methods for implementation, aligning theories of double loop learning (Argyris & Schön, 1978, 1996), and triple-loop learning within organizations (Hargroves, 2008). A significant body

of research supports the positive impact of PLCs on student and campus success (Lewis, 2008; Saunders, Goldenburg, and Gallimore, 2009; NMSA, 2003; Strahan, 2008). The most effective professional development programs allowed participants to share views and work in a culture of collegiality (Guskey & Yoon, 2009). PLCs represent a critical method to improve teacher quality and professional learning (Hord, 2009).

Thompson, Gregg, and Niska (2004) contended that PLCs allow teachers to collaborate, develop classes and lessons together, and teach each other. Thompson et al. (2004) reported case studies conducted in successful schools revealed teachers reported functioning as PLCs within their schools, whereas teachers in unsuccessful schools reported such collaborative practices remained absent in their schools. In this causal-comparative study, surveying groups of teachers occurred to determine perceptions (dependent variable) about alignment of professional developments (independent variable) to the 12 NSDC standards. The selection of a causal-comparative approach as the research design method best aligned with research questions, which sought to determine cause-and-effect relationship between dependent and independent variables.

Objectives of the Present Study

This quantitative, causal-comparative study determined teacher's perceptions regarding alignment of their professional developments to the 12 NSDC standards for professional development in high-achieving and low-achieving elementary-middle (E-M) schools in an urban school district in the northeast section of the United States. This study further adds to the body of knowledge regarding professional development quality, including whether high-achieving schools function more like professional learning communities (PLCs) as compared to low-achieving schools. Data derived from this study on alignment of professional development with the 12 NSDC standards can provide school leaders with insight and knowledge needed to develop high-quality professional learning opportunities for their staff, and make decisions regarding how to differentiate professional development opportunities provided to teachers. Additionally, setting up a process of evaluation and data gathering allows the most effective means for teachers to accurately measure true impact of professional development (Hirsh & Killion, 2009).

Method

This causal-comparative study determined teachers' perceptions regarding alignment of professional developments to the 12 NSDC standards for professional development in high-achieving and low-achieving elementary-middle (E-M) schools in an urban school district. Investigative procedures adhered to all standards and expectations of the Institutional Review Board regarding human subjects and ethical research practices. The study sought to analyze teachers' perceptions regarding the extent professional development aligned to the 12 NSDC standards and impacted their school as a professional learning community through the following research questions: 1) To what extent does professional development align to the 12 NSDC standards as perceived by teachers in high-achieving and low-achieving urban elementary-middle schools? and 2) To what extent do teachers in high-achieving and lowachieving urban elementary-middle schools perceive that their professional development impacts their school as a professional learning community?

Participants

The study population consisted of teachers from four high-achieving and four low-achieving Elementary-Middle (E-M) schools in an urban school district in the northeastern part of the United States. Approximately 280 participants took part in the study. Convenience sampling served as the most appropriate sampling method because of specific criteria for identifying schools by which to locate participants in the sample. In order to select schools for the study, published archival data from the state department of education and the selected district (public domain) were reviewed to determine AYP status for each school. For the purpose of the study, teachers within selected schools received permission from the school district to participate in the study. Years of experience, gender, teaching certification status, content, or grade level taught did not exclude a teacher from the study. Those excluded included substitute teachers, paraprofessionals, and school administrators. The assumption was that teachers working in elected schools did, in fact, participate in multiple professional development opportunities in their schools. Table 1 outlines comparability of the four selected high-achieving (H-A 1-4) and the four selected low-achieving (L-A 1-4) urban E-M schools for the study. It merits noting that demographics differences between the high-achieving and low-achieving schools differ considerably with low-achieving schools consisting of higher number of minority students on

free and reduced meals taught by a lower percent of highly qualified teachers (i.e., only one of the high-achieving schools had a similar number of highly qualified teachers.

Table 1: School Comparability Chart

Demographics	H-A_1	H-A_2	H-A_3	H-A_4	L-A_1	L-A_2	L-A_3	L-A_4
AYP (overall)	Met	Met	Met	Met	Not Met	Not Met	Not Met	Not Met
Consecutive years AYP met	4	4	4	4	N/A	N/A	N/A	N/A
Consecutive years AYP not met	N/A	N/A	N/A	N/A	4	4	4	4
FARMS (Free and Reduced Meals)	76.2%	70.4%	78.5%	74.3%	86.9%	92.8%	94.4%	85.9%
Special Education	9.3%	22.8%	14.4%	12.5%	12.5%	15.2%	13.5%	14.9%
% Highly Qualified Teachers	91.8%	86.4%	80%	73.1%	72.0%	73.4%	73.3%	57.5%
Student Enrollment	327	459	647	694	832	391	599	492
% Minority	16.2%	41.1%.	88.3%	91.1%	97.4%	99.5%	99.8%	99.8%
% Non-Minority (white)	83.8%	59.9%	11.3%	8.9%	2.6%	.5%	.2%	.2%
Attendance	91.72%	93.92%	96.33%	94.94%	93.82%	93.36%	96.36%	92.86%
Advanced Academic Programs	No	No	No	No	No	No	No	No

Note. Data accessed from MSDE (2010), Mdreportcard.org, and School District Profile
H-A_1. H-A_4 = High-achieving Schools; L-A_1. L-A_4 = Low-achieving Schools

Instrument

In 2003, the Southwest Educational Development Laboratory (SEDL) Evaluation Services developed the SAI for NSDC. The SAI serves the purpose of determining how well a professional development program of the school accurately follows principles symbolizing best approaches for organizational learning (Kiernan, Jones, & McCann, 2009). The SAI consists of a 60-question self-administered questionnaire. Five questions measure and represent the 12 NSDC standards (subscales). In addition, the 12 standards of the SAI divide into three broader sub-categories: context, content, and process (Kiernan et al., 2009). The target population for the SAI consists of teachers and school-based staff members participating in teacher professional development and the instrument assists schools and districts in measuring alignment of professional development trainings with the NSDC standards for staff development (Roy, 2010). The NSDC granted permission for use of the SAI which is maintained by authors for archival purposes. Selection of the SAI as the data collection instrument occurred due to its pre-established reliability and validity scores, and use in national studies and survey research conducted by NSDC (Kiernan et al., 2009). The NSDC administered the SAI for several studies conducted to determine alignment of teacher professional development opportunities to the 12 NSDC standards for high-quality professional development (Wei et al., 2010). With pre-established validity and reliability, the SAI represents a reputable data collection tool and did not require piloting. The use of the SAI as the measurement instrument addressed the instrument as a potential threat to external validity because the SAI increases generalization of the study, and, within its design, specifically answers the research questions.

Data Analysis

Causal-comparative research seeks to learn the cause for existing differences (i.e., high and low school achievement) in behavior of groups or individuals, and deals with conditions that have already occurred (i.e., professional development) and then studied after the fact. The study required participants to complete the SAI, an electronic, Likert-style survey developed by NSDC, measuring how well the professional development program of the school align to the standards for creating high quality professional learning (Kiernan, Jones, & McCann, 2009). Data analysis included both inferential and descriptive statistics. Descriptive statistics included calculating the mean and standard deviation of the scores. Inferential statistics, in the form of a

two-tailed t-test of the independent means, tested for significance. Application of inferential statistics took place in the form of a two-tailed t-test for independent means. The t-test for independent means occurred to test the hypotheses. The two-tailed t-test for independent means serves as the method for testing groups that have been formed without matching, meaning an absence of a relationship between the two groups. The t-test for independent means determines if a significant difference exists between the means, and allows the research scientist to accept or reject the null hypothesis. As this study only tested two groups, the t-test surfaced as the more appropriate one to determine the significant difference between the mean scores of the two groups. In addition, the conduction of the two-tailed t-test meant that only the null and alternative hypotheses provided testing for significance.

Results

Demographic Characteristics

The results of state standardized test scores provided criteria for school selection. Requests made to principals of the four high-achieving (schools meeting state standards at least four consecutive years) and the four low-achieving schools (schools failing to meet state standards at least four consecutive years) identified the study sample population. All principals granted permission to conduct the study with teachers in their schools. After data collection, a data review occurred. Participants failing to complete the survey were excluded from data analysis. A total of 271 teachers participated including 134 (n=134) teachers from high-achieving schools, and 137 (n=137) teachers from low-achieving schools. The SAI gauges teachers for perceptions on alignment of their professional development opportunities to the 12 NSDC standards and does not identify gender, race, or age of participants. For the purpose of this study additional demographic data were collected enabling analysis of variables, such as number of years teaching at the current school, total number of years teaching, and amount of daily time spent teaching.

Years at School:

Collected demographic data included the number of years participants taught in their current school. Review of demographic data revealed 53% of teachers from high-achieving schools indicated they worked in their current school less than four years, as compared to 67% of participants in low-achieving schools. Conversely, demographic data revealed 25% of teachers in

high-achieving schools taught in their current school for 10 or more years, as compared to 10% in low-achieving schools.

Years of Teaching:

A collection of demographic data occurred including the number of years participants have served in the teaching profession. A total of 49% of participants in high-achieving schools indicated teaching ten or more years, as compared to 29% in low-achieving schools. Respectively, 24% and 34% of teachers in high-achieving and low-achieving schools taught less than 4 years.

Time Spent Teaching:

Daily time spent teaching provided another demographic question asked of participants. Seventy-seven percent of participants in high-achieving schools indicated they teach more than 60% of the time each day, as compared to 97% of teachers in low-achieving schools. Twenty-three percent of teachers in high-achieving schools indicated they teach less than 60% of the time, compared to 3% of participants in low-achieving schools.

Teacher Perception of Professional Development

Research question one focused on alignment of the professional development offered to teachers to the 12 NSDC standards. Both descriptive and inferential statistics served to answer the research question and test the null hypothesis. The descriptive statistic resulted from the calculation of the mean and standard deviation. The inferential statistical analysis procedure consisted of independent samples t-test. Table 2 provides descriptive statistics for high-achieving and low-achieving participant groups regarding research question one.

Table 2: Descriptive Statistics for Perception of Overall Professional Development in High-Achieving and Low-Achieving School Participants.

Variable	*School Type*	*N*	*M*	*SD*	*SE*
Professional Development	Low Performing	133	74.5	25.51	2.21
	High Performing	124	111.34	25.29	2.27

Note: *M*= Mean; *SD*= Standard Deviation, and *SE*= Standard Error

A total of 271 individuals participated in the study (134 high; 137 low); however, an exclusion from the inferential statistics occurred for participants failing to fully complete the survey. Data revealed that of 137 participants from low-achieving schools, the statistical test (n=133) included 133 participant scores, with high-achieving group (n=124) providing 124 of that number. Of a possible mean score of 240 (i.e., 60 questions with a score of 1-4 with 4 identifying school practices most closely aligned to the 12 NSDC standards), the low-achieving group demonstrated a lower perception of professional development alignment to the 12 NSDC standards (M=74.48, SD=25.51). Scores reflected that participants from high-achieving schools believed their professional development more closely aligned with the 12 NSDC standards (M=111.34, SD=25.29). On average, respondents from both high- and low-performing schools perceive their professional development aligned with the 12 NSDC standards less than 50% of the time (i.e., mean of 120 or below).

The inferential statistic for the study consisted of an independent samples t-test. Table 3 represents the results of the independent samples t-test conducted to determine if a significant difference existed between the perceptions of teachers in high-achieving and low-achieving schools regarding the quality of their professional development. Based on the t-test for equality of means, with a confidence interval of 95% and a p of .05, the value of p was .000, which was ≤ 0.05. A p value of ≤ 0.05 indicated that a significant difference existed, and the null hypothesis was rejected. Calculation of the effect size occurred to determine the degree of significance. Based on results of the independent samples t-test, and calculation of the effect size, the answer to research question one was: On average, teachers in high-achieving urban E-M schools perceived their professional development more aligned to the 12 NSDC standards (M=111.34, SE=2.27) than teachers in low-achieving urban E-M schools (M=74.48, SE=2.21). A significant difference resulted t(255) = -11.623, p ≤ 0.05; and represented a medium-sized effect (r = .346).

Table 3: Independent Sample T-Test Comparing Teacher's Perception about the Alignment of Professional Development to the 12 NSDC Standards (with equal variances assumed)

Variable	*t*	*Df*	*P*
Overall Professional Development	11.62	255	.000*

Note: Overall comparison of teacher perception of professional development between high-achieving and low-achieving urban E-M schools. *p ≤ 0.05

Professional Learning Communities

Research question two focused on perceptions of teachers regarding alignment of professional development received to NSDC standard one, PLCs. Both descriptive and inferential statistics provided answers for the research question and test the null hypothesis. The descriptive statistics resulted with calculation of the mean and standard deviation. Table 4 presents the descriptive statistics for high-achieving and low-achieving participant groups.

Table 4: Descriptive Statistics for Perceptions of Professional Development as Professional Learning Communities in High-Achieving and Low-Achieving School Participants.

Variable	School Type	N	M	SD	SE
PLCs	Low-Performing	134	8.73	3.78	.326
	High-Performing	122	13.59	4.20	.381

Note: *M*= Mean, *SD*= Standard Deviation, *SE*= Standard Error, PLC=Professional Learning Communities

A total of 271 individuals participated in the study (134 high; 137 low); however, an exclusion from the statistics occurred for those participants failing to complete the survey. Data revealed that of the 137 participants from low-achieving schools, an inclusion occurred for 134 participant scores in the statistical test for RQ2 (n=134), and an inclusion for 122 from the high-achieving group (n=122).

A total of 256 individuals participated in the test statistic. Of a possible mean score of 20.0 (i.e., 5 questions with a score of 1-4 with 4 identifying school practices most closely aligned to the 12 NSDC standards), the low-achieving group ranked with a lower perception of professional development functioning as a professional learning community (M=8.73, SD=3.78), compared to teachers in high-achieving schools. Participants from high-achieving schools exhibited a higher perception of professional development functioning as PLCs (M=13.59, SD= 4.20).

An independent samples t-test again served as the inferential statistic to best answer research question two. Table 5 represents results of the inferential statistics conducted to determine whether a significant difference existed between the perceptions of teachers in high-achieving and low-achieving schools regarding the alignment of professional development to the professional learning community standards of NSDC.

Table 5: Independent Sample T-Test Comparing Teacher's Perception about Professional Development as Professional Learning Communities (with equal variances assumed)

Variable	*t*	*df*	*P*
PLCs	-9.73	254	.000*

*Notes: *p ≤ 0.05,* PLCs=Professional Learning Communities

Based on results of the independent samples t-test, and calculation of the effect size, the following answers research question two: On average, teachers in high-achieving urban E-M schools perceived their professional development aligned to the NSDC standards for PLCs (M=13.59, SE=.326) more than teachers in low-achieving urban E-M schools (M=8.73, SE=.381). This significant difference $t(254) = -9.729$, $p \leq 0.05$ represented a small-sized effect ($r = .270$).

Discussion

The current study stemmed from lack of quantitative research on teacher professional development. Sawchuk (2009) reported much research performed on professional development remains qualitative rather than quantitative, and limited influence of professional learning on school achievement remains. Sawchuk and Keller (2010) contended minimal proof exists that professional development influences student performance due to lack of educational research. Limited literature exists regarding how to enhance and apply professional development in low-achieving schools (Fielder, 2010). This research study emerged to add to the body of knowledge involving improving professional development in schools, especially in schools identified as low-performing. With the inception of NCLB, schools struggled to increase student achievement, and professional development has been determined a key factor in school reform efforts (Gordon, 2004).

Provisions of NCLB require high-quality professional development in schools while failing to provide clear strategies for effective professional development implementation (Sykes & Dibner, 2009). Sawchuk (2009) reported Linda Darling-Hammond, education advisor to President Obama, as believing NCLB needs additional clarity regarding measures for improving instructional quality. School leadership should consider designing professional development trainings embedding the knowledge and strengths of participants to ensure teachers alter

behaviors, and consequently increase student achievement. This quantitative, causal-comparative study gauged teachers' perceptions about alignment of professional development to the 12 NSDC standards in high-achieving and low-achieving urban EM schools in a school district in the northeast section of the United States. Close alignment of professional development to the 12 NSDC standards indicates quality professional development (National Staff Development Council, 2009).

Teacher Perception of Professional Development

A significant difference existed between perceptions of teachers from high-achieving and low-achieving schools regarding quality of professional development opportunities. Results reflected significance equivalence of a medium-effect size, meaning the differences in perceptions were noteworthy. Causal-comparative research provides explanations or reasons for differences in performance or status between groups (Gay et al., 2009). Study results revealed that teachers in high-achieving schools perceived their professional development aligned to the 12 NSDC standards to a greater degree than teachers in low-achieving schools, thus indicating that higher quality professional development contributes to higher student achievement.

Study findings revealed high-quality professional development served as a key factor in improving teacher quality, and subsequent student assessment scores. In addition, a study conducted by Engstrom and Danielson (2006) revealed that teachers in high-achieving schools also reported high levels of satisfaction with professional development opportunities. Not only did participants report a multiplicity of training, but experienced a variety of opportunities for growth at the school.

Professional Learning Communities

A significant difference existed between perceptions of teachers from high-achieving and low-achieving schools regarding alignment of professional development opportunities to professional learning communities. Results showed the significance was equivalent to a small effect size. Teachers in high-achieving schools perceived their professional development opportunities aligned to NSDC One, Learning Communities, to a greater degree than teachers in low-achieving schools, thus indicating that professional development designed as Professional Learning Communities supporting increased teamwork and collaboration contributed to higher

student achievement. It merits noting, however, that respondents from both groups of teachers (high and low-achieving schools) perceived their professional development aligned less than 50% of the time with the 12 NSDC standards (i.e., as demonstrated by a mean of 120).

The outcome indicated that participants from high-achieving schools believed their professional developments included more elements of collaboration and teamwork, characteristics identified as those of PLCs, and high performing schools (Hill, 2009). The findings proved consistent with studies conducted nationally and abroad. Teachers working in countries with high student achievement reported receiving professional learning community opportunities, such as teacher-to-teacher classroom visits, frequent teamwork on instructional deficits, and opportunities for collaborative research (Kang & Hong, 2008). Deep collaboration is identified as another characteristic of PLCs.

Research findings resemble a study conducted by Kannapel and Clements (2005) on high-performing, high-poverty schools in Kentucky. Authors surveyed teachers in eight high-performing, high-poverty schools to determine common practices that may explain the success of the school. The study found teachers in high poverty/high-performing schools reported working more frequently in PLCs, specifically with high levels of collaboration.

The findings for both research questions align to the theoretical framework regarding organizational learning and learning loops. Organizations providing quality professional development and function similar to PLCs are likely to have staff members operating in the double and triple loops of learning, where teacher practice and student achievement improve (Sparks, 2004). Providing quality professional development aligning to the establishment of PLCs changes paradigms, beliefs, and practices (characteristics of learning loops), and can yield positive student outcomes (Argyris, 2002; Dufour, 2004).

Implications for Leadership

The result of this study outlined several implications for school and district leadership. Teacher learning, specifically the way in which the organization learns, serves as a critical component in educational change (Imants, 2003). Providing quality professional development proves a difficult task for many school leaders (Yoon et al., 2007). Because of educational laws, such as NCLB, educational leaders feel the sense of urgency to improve the quality and effectiveness of professional development for teachers. The school leader plays an important role

in the success of professional learning in the organization. In a study conducted by Louis and Wahlstrom (2011), findings reflected that school leadership promoted the improvements in professional development, and the elevation of organizational learning. Additionally, failing to provide quality professional development can result in loss of federal dollars for school leaders and districts toward teacher improvement efforts.

The establishment of PLCs in schools remains a vital factor for educational leaders creating effective change in teacher practice and student achievement (Owens, 2010). This study can help school leaders focus attention on creating quality professional development reflecting standards for PLCs. Imants (2003) asserted that focus of school practitioners centers on teachers' working as professional communities and learning organizations.

This study can support school leaders with developing and designing professional learning opportunities for staff improving teacher quality, and thereby transforming the organization into a community of professional learners, especially in low-achieving schools. For example, by analyzing results of campus professional development program evaluations, administrators can improve programing at the district, campus, and individual levels to increase teacher effectiveness for positive impact on school achievement. Approximately 3.8 million educators are currently practicing in schools (The National Academy of Education, 2009); however there are limited effective teachers, primarily in the settings servicing economically challenged, high-risk, or high minority student groups. The results of this study can provide school leaders with clear strategies for creating professional development improving student achievement, particularly in low-achieving schools.

Recommendations for Future Research

Research on developing high-quality professional development for teachers remains important for improving teaching and learning in schools (Bill & Melinda Gates Foundation, 2014). A small sample of rigorous quantitative research studies on professional development's influence on school achievement exist, and even fewer are present that support causal conclusions (Darling-Hammond, Wei, Andree, et al., 2009). Required additional research in this area proves essential if final outcomes for schools result in improved teaching and learning.

The SAI helped to determine the alignment of professional development to the 12 NSDC standards for quality professional development as perceived by teachers within high- and low-

performing schools. Several states adopted the NSDC standards for professional development, and now require school leaders to refer to the standards as they design and provide professional development to teachers.

Recommendations for future research include, conducting a quantitative study to determine which sub-standards become more prevalent in high-achieving schools versus low-achieving schools. Research on the sub-standards can outline for school leaders which specific set of standards to address during professional development design and facilitation. Designing professional development curriculum, strategically using the sub-standards, focuses the learning opportunities for teachers (NSDC, 2009).

Demographic data collected from the study revealed that teachers in high-achieving schools reported spending more time outside of the classroom directly teaching than teachers in low-achieving schools. Teachers in high-achieving schools also reported spending 77% of their daily time teaching, as opposed to 97% of teachers in low-achieving schools. A mixed methods study determining the amount of time teachers in high-achieving schools spend outside of the classroom, and specifically how they spend their time while not providing classroom instruction during a given school day, could establish additional insight.

Conducting quantitative studies to compare the impact of time spent on professional development in high-achieving and low-achieving schools provides another recommendation for future research. The amount of time allocated for professional development did not represent a variable presented in this study, and did not reflect a demographic characteristic for data collection on the survey tool. Based on prior research, thorough professional development provided on average of 49 hours each year increased student learning by 21% (Darling-Hammond et al., 2009).

Teachers in the United States tend to spend their time for professional training in an isolated setting rather than in time collaborating among other teachers within a school setting (Sawchuk, 2009). Isolating teachers counteracts the advantages of collaborating and learning from other teachers' wisdom and instructional skills. The study could also include time provided to practice newly acquired skills learned from professional development, and time spent on support and feedback to teachers.

A qualitative study would compare teachers in high-achieving and low-achieving schools to determine their perceptions of professional development quality. Direct conversations

with educators could glean additional perspectives into the barriers and triumphs teachers undergo with new curriculum or reform, emphasizing school and district leaders what further supplements might be beneficial (Desmoines, 2011). Allowing teachers in high-achieving, high-poverty schools to provide explicit examples of practices and strategies learned during professional development that impact the organization as a professional learning community, can offer educational leaders additional insight toward professional development improvements.

In summary, this quantitative, causal-comparative research study found that a significant difference existed between teacher perceptions in high-achieving and low-achieving schools regarding the quality of their professional development, and professional development designed as PLCs. The study findings aligned with much of the limited existing research on the topic. Existing research studies found that teachers in high-achieving schools (in general), including those labeled as low-poverty/high-achieving, often receive professional development of a higher quality than teachers in low-poverty/low-achieving schools (U.S. Department of Education (USDE), 1998). Research conducted by the U.S. Department of Education found that low-performing schools often demonstrate low-morale, have limited resources, and lack organized learning environments (USDE, 1998).

Kinsler (2008) believed that successful schools serving high needs populations, understand that teacher professional development and collaboration (opportunities to function as PLCs) will improve teacher practice. In addition, the philosophies of organizational learning and learning loops represent explored concepts formulating a basis for enhancing teacher learning and school performance (Imants, 2003). Educational research on the topic of professional development quality, including how to function as PLCs, can assist school leaders in designing and facilitating learning opportunities for teachers that will change beliefs, improve instructional practices, and benefit students.

References

Argyris, C. (2002). Double-loop learning, teaching, and research. *Academy of Management Learning and Education, 1*, 206-218. doi: 10.5465/AMLE.2002.8509400

Argyris, C., & Schön, D. (1978) *Organizational learning: A theory of action perspective,* Reading, Mass: Addison Wesley

Bill & Melinda Gates Foundation. (2014). *Teachers Know Best: Teachers' Views on Professional Development.* Retrieved from http://collegeready.gatesfoundation.org/article/teachers-know-best-teachers-views-professional-development

Darling-Hammond, L., Wei, C., Andree, A., Richardson, N., & Orphanos, S. (2009). State of the profession: Study measures status of professional development. Professional *Learning Today, 30*(2), 42-50. Retrieved from http://www.learningforward.org/news/getDocument.cfm?articleID=1844

Desmoine, L. (2011). A primer on effective professional development. *Phi Delta Kappan, 92*(6), 68-71.

Doubek, M., & Cooper, E. (2007). Closing the achievement gap through professional development: Implications for reading research. *Reading Research Quarterly, 42*, 411-415. doi:10.1598/RRQ.42.3.5

Dufour, R. (2004). What is a "professional learning community"? *Educational leadership, 61*(8), 6-11.

Engstrom, M., & Danielson, L. (2006). Teacher's perceptions of an on-site professional development model. *The Clearing House, 79*(4), 170-173.

Fielder, A. (2010). *Elementary school teachers' attitudes toward professional development: A grounded theory study* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database.

Gay, L., Mills, G., & Airasian, P. (2009). *Educational research: Competencies for analysis and applications* (9th ed). Upper Saddle River, NJ: Pearson.

Gordon, S. (2004). *Professional development for school improvement: Empowering learning communities* (1st ed.). Upper Saddle River, NJ: Prentice Hall.

Guskey, T., & Yoon, K. (2009). What works in professional development? *Phi Delta Kappan, 90*(7), 495-500.

Hargroves, R. (2008). *Masterful coaching*. San Francisco, CA: Jossey-Bass.

Hill, H. (2009). Fixing teacher professional development. *Phi Delta Kappan, 90*(7), 470-476.

Hirsh, S. (2005). Professional development and closing the achievement gap. *Theory into Practice, 44*, 38-44. doi: 10.1207/s15430421tip4401_6

Hirsh, S., & Killion, J. (2009). When educators learn, students learn. *Phi Delta Kappan, 90*(7), 464-469.

Hord, S. (2009). Professional learning communities. *Journal of Staff Development, 30*(1), 40-43.

Imants, J (2003). Two basic mechanisms for organizational learning in schools. *European Journal of Teacher Education, 26*, 295-311. doi: 10.1080/0261976032000128157

Jacquith, A., Mindich, D., Wei, R., & Darling-Hammond, L. (2010). *Teacher professional learning in the United States: Case studies of state policies and strategies*. National Standards Development Council. Oxford, OH: Learning Forward.

Kang, N., & Hong, M. (2008). Achieving excellence in teacher workforce and equity in learning opportunities in South Korea. *Educational Researcher, 37*, 200-207. doi: 10.3102/0013189x08319571

Kannapel, P. J., & Clements, S. K. (2005). *Inside the black box of high-performing high-poverty schools: A report from the Prichard Committee for Academic Excellence*. Lexington, KY: Prichard Committee for Academic Excellence.

Kiernan, M., Jones, D., & McCann, E. (2009). *Latest evidence on the national staff development council's standards assessment inventory*: Research brief. Austin, TX: SEDL Research and Evaluation.

Kinsler, K. (2008). Teaming for success in underperforming schools. *Kappa Delta Pi Record, 44*(3), 128-131.

Levine-Bradley, J., Smith, J., & Carr, K. (2009). The role of action research in empowering teachers to change their practice. *Journal of Ethnographic & Qualitative Research, 3(3)*, 152-161.

Lewis, A. (2008). Listen to what's not being said. *Phi Delta Kappan, 90*(2), 83-84.

Louis, K.S. & Wahlstrom, K. (2011) Principals as cultural leaders. *Kappan Magazine*, *92*(5), 52-56.

McNamara, C. (2007). *Field guide to consulting and organizational development*. Minneapolis, MN: Authenticity Consulting.

Mizell, H. (2001). How to get there from here. *Journal of Staff Development, 22(3)*, 18-20.

National Center for Education Statistics (NCES). (2005). *Characteristics of public school teachers' professional development activities: 1999-2000*. U.S. Department of Education Institute of Education Sciences. Washington, DC: Author

National Commission on Teaching and America's Future (NCTAF). (1996). *What matters most: Teaching for America's future*. New York, NY: The United States of America.

National Staff Development Council (NSDC) (2009). *About us*. Retrieved from http://www.learningforward.org/about/index.cfm

National Staff Development Council (NSDC) (2010). *Faq*. Retrieved from etsp.k12.ar.us/Documents/SAI/SAI%20FAQ.doc

NMSA Research Committee. (2003). *Research and resources in support of in this we believe*. Westerville, OH: National Middle School Association.

Owens, R. (2010). New schools of thought: Developing thinking and learning communities. *The International Journal of Learning*, *17*(6), 43-54.

Peschl, M. F. (2007). Triple-loop learning foundation for profound change, individual cultivation and radical innovation: Construction processes beyond rational knowledge. *Constructivist Foundations, 2*(2-3), 136-145.

Powell, D., Higgins, H. J., Aran, R. & Freed, A. (2009). Impact of no child left behind on curriculum and instruction in rural schools. *The Rural Educator, 31*(1), 19-28.

Ross, J., Bruce, C., & Gray, A. (2006). The impact of professional development program on student achievement in grade 6 mathematics. *Journal of Mathematics Teacher Education, 9*, 551-577. doi: 10.1007/s10857-006-9020-x

Roy, P. (2010). *Using the SAI to build a district professional development plan*. National Standards Development Council & Arizona State Department of Education. Retrieved from http://www.learningforward.org/standards/sai_schoolplan.pdf

Saunders, W.M., Goldenberg, C.N., & Gallimore, R. (2009). Increasing achievement by focusing grade level teams on improving classroom learning: A prospective, quasi-experimental study of title 1 schools. *American Educational Research Journal, 46*, 1006-1033. doi: 10.3102/0002831209333185.

Sawchuk, S. (2009). Staff development for teachers deemed fragmented: Training still tends to take place outside schools. *Education Week, 28*(21), 7-10. Retrieved from http://www.edweek.org/ew/articles/2009/02/11/21development-2.h28.html

Sawchuk, S., & Keller, B. (2010). Professional development at a crossroads: To influence policy, the field must be able to articulate both what it is and how it can help teachers improve student achievement. *Education Week, 30*(11), 2-4. Retrieved from http://www.edweek.org/ew/articles/2010/11/10/11pd_overview.h30.html

Schmitt, V. (2004). The relationship between middle level grade span configuration, professional development, and student achievement. *Research in Middle Level Education Online, 27*(2), 1-13. Retrieved from http://www.amle.org/portals/0/pdf/publications/RMLE/rmle_vol27_no2_article1.pdf

Schmoker, M. (2009). What money can't buy. *Phi Delta Kappan, 90*(7), 524-527.

Schramm, R. (2006). An analysis of the national center's teacher professional development programs and national professional development standards. *National Humanities Center: The Teacher Professional Development Program*. Retrieved from http://nationalhumanitiescenter.org/pds/npdstandards.htm

Searchquotes (2011). *Hiam Gnott*. Retrieved from, http://www.searchquotes.com/quotation/Teachers_are_expected_to_reach_unattainable_goals_with_inadequate_tools._The_miracle_is_that_at_time/240158/

Sparks, D. (2004). The looming danger of a two-tiered professional development system. *Phi Delta Kappan, 86*(4), 304-306.

Strahan, D. (2008). Successful teachers develop academic momentum with reluctant students. *Middle School Journal, 39*(5), 4-12.

Sykes, G. & Dibner, K. (2009). Improve teaching quality with aggressive support. *Phi Delta Kappan, 90*(8), 588-591.

Thompson, S. C., Gregg, L., & Niska, J.M. (2004). Professional learning communities, leadership, and student learning. *Research in Middle Level Education Online, 28*(1), 1-15. Retrieved from http://www.nmsa.org/Publications/RMLEOnline/Articles/Vol28No1Article2/tabid/439/Default.aspx

Tirozzi, G., & Uro, G. (1997). Education reform in the United States: National policy in support of local efforts for school improvement. *American Psychologist, 52*(3), 241-249.

U.S. Department of Education (1998). *Turning around low performing schools: A guide for state and local leaders*. Retrieved from http://www2.ed.gov/PDFDocs/turning.pdf.

U.S. Department of Education, Office of the Under Secretary (2006). Section I: The study of professional development and teacher change: Building on national, cross-sectional

finding with longitudinal data. *The Journal for Vocational Special Needs Education, 28*(2), 19-24.

Wenger, E., McDermott, R., & Snyder, C. (2002). *Cultivating communities of practice: A guide to managing knowledge*. Cambridge, MA: Harvard Business School Press.

Wei, R. C., Darling-Hammond, L., & Adamson, F. (2010). *Professional development in the United States: Trends and challenges*. Dallas, TX: National Staff Development Council.

Wei, R. C., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad*. Dallas, TX: National Staff Development Council.

Yoon, K., Duncan, T., Lee, S., Scarloss, B., & Shapely, K. (2007). Reviewing the evidence on how teacher professional development affects student achievement. *Regional Educational Laboratory (REL): Issues and Answers, 33*, 1-59. Retrieved from http://ies.ed.gov/ncee/edlabs/regions/southwest/pdf/REL_2007033.pdf